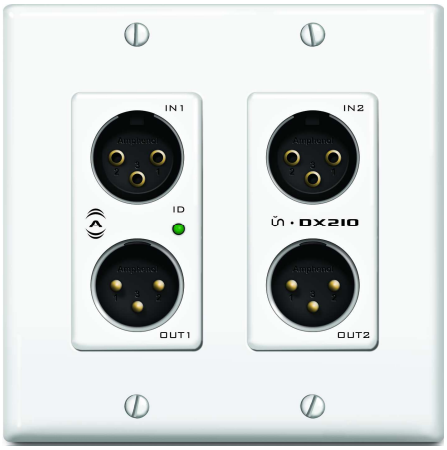
unDX2IO

2-in/2-out Dante Wallplate



User Manual

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Revision 01

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IMPORTANT SAFETY INSTRUCTIONS

The symbols below are internationally accepted symbols that warn of potential hazards with electrical products.

This symbol, wherever it appears, alerts you to the presence of un-insulated dangerous voltage inside the enclosure -- voltage that may be sufficient to constitute a risk of shock.

This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and third grounding prong. The wider blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by Attero Tech
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus.
13. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
16. This apparatus shall be connected to a mains socket outlet with a protective earthing connection.
17. When permanently connected, on all-pole mains switch with a contact separation of at least 3mm in each pole shall be incorporated in the electrical installation of the building.
18. If rack mounting, provide adequate ventilation. Equipment may be located above or below this apparatus but some equipment (like large power amplifiers) may cause an unacceptable amount of hum or may generate too much heat and degrade the performance of this apparatus,

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

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LIMITED TWO YEAR WARRANTY

The equipment is warranted for two year from date of purchase from Attero Tech, LLC against defects in materials or workmanship. This warranty does not cover equipment which has been abused or damaged by careless handling or shipping. This warranty does not apply to used or demonstrator equipment. Should any defect develop, Attero Tech, LLC will, at our option, repair or replace any defective parts without charge for either parts or labor. If Attero Tech, LLC cannot correct the defect in the equipment, it will be replaced at no charge with a similar new item. Attero Tech, LLC will pay for the cost of returning your equipment to you. This warranty applies only to items returned to Attero Tech, LLC, shipping costs prepaid, within two year from the date of purchase. This Limited Warranty is governed by the laws of the State of Indiana. It states the entire liability of Attero Tech, LLC and the entire remedy of the purchaser for any breach of warranty as outlined above. NEITHER ATTERO TECH, LLC NOR ANYONE INVOLVED IN THE PRODUCTION OR DELIVERY OF THE EQUIPMENT SHALL BE LIABLE FOR ANY INDIRECT, SPECIAL, PUNITIVE, CONSEQUENTIAL, OR INCIDENTAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THIS EQUIPMENT EVEN IF ATTERO TECH, LLC HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL THE LIABILITY OF ATTERO TECH, LLC EXCEED THE PURCHASE PRICE OF ANY DEFECTIVE EQUIPMENT.

This warranty gives you specific legal rights. You may have additional legal rights which vary from state to state.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules and EN55022. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

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1 - Overview

The unDX2IO Dante™ Audio interface is a cost effective multi-IO wall box and is designed to fit into most dual gang US junction boxes. Its size and I/O density make it easy to put Dante connectivity wherever it's needed – near the audio source or sink – thereby eliminating costly and interference prone analog wiring.

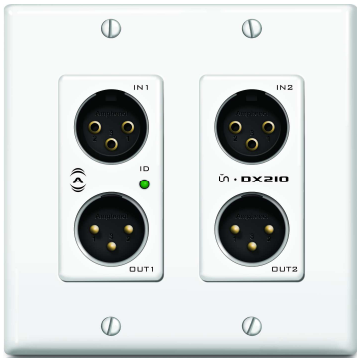

Figure 1 - unDX2IO front and back

It features two balanced mic/line XLR inputs and two balanced XLR line outputs with each input also supporting 48V phantom power. All inputs and outputs can be used simultaneously and all audio channels are available separately.

Connection to the Dante network is provided by a single Ethernet RJ45 connector on the back of the unit. The unDX2IO is PoE-enabled which allows the unDX2IO to be powered over its network cable from a suitable PoE source (IEEE 802.3af) eliminating the need for a local power supply. This is particularly useful as the unDX2IO can then be mounted in remote location where access to a mains outlet would be limited or indeed, non existent.

Audinate's Dante Controller software is used to control the audio routing configuration of the device while the Attero Tech unIFY Control Panel application can be used to configure the device-specific features, such as the mic/line configuration, and phantom power.

The unDX2IO can be controlled and monitored via with 3rd party Control software via a proxy service. See the unIFY Proxy Server Users Manual for more details.

1.1 – What's in the Box

The unDX2IO comes supplied with the following

- unDX2IO device
- Mounting kit
- Decora plate

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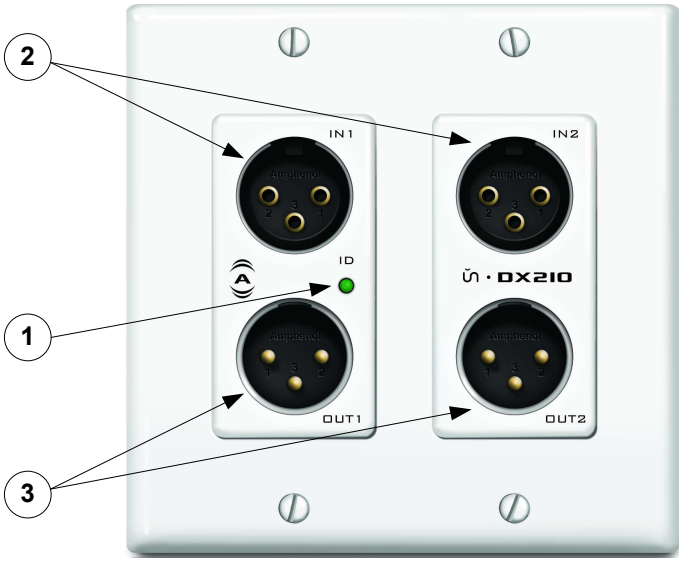
2 – Device Installation



1	Power/ ID LED
2	2 x Balanced audio inputs
3	2 x Balanced Audio outputs

**Note:* *The unDX2IO has a label on the front of the metal housing at the top that shows the last 6 digits of the MAC address. This is important for initial device identification as these digits make up part of the devices default network name that is shown when the device is detected by Dante Controller. The full MAC address is also given on the back of the unit.*

2.1 – Mounting

A typical installation will involve mounting the wall plate into a pre mounted wall box. Before starting, make sure the wall box where the unDX2IO is to be installed is pre-wired with a suitable cable back to a PoE enabled network switch or mid-span injector. If a mid-span injector is being used, the cable should be connected to the port that supplies both Ethernet and power (refer to the devices manual if unsure which port is which).

Attach the network cable from the switch/mid-span injector to the Dante I/F port of the Dante unDX2IO. If the switch or mid-span injector is already running and PoE is enabled, the unit should power up and the green ID LED on the front of the device should turn on.

With the cable attached, carefully place the unDX2IO into the wall box taking care to not trap the cabling. Once full in place, secure it with the screws provided. Once the unit is secured in the wall box, fit the Decora plate and secure it with the screws provided with it.

2.2 – Hardware Connections

The unDX2IO accepts and drives either unbalanced or balanced audio devices. Refer to the following diagrams and instructions for connecting different types of audio devices. Professional grade audio cabling is recommended to achieve the best audio performance throughout the system.

2.2.1 – Input from an Unbalanced Source

To connect a 2-wire unbalanced source to the unDX2IO, connect the positive output of the unbalanced source to the positive input of the unDX2IO. Connect both the source and unDX2IO input grounds together, and short the negative input of the unDX2IO to ground at the input of the unDX2IO.

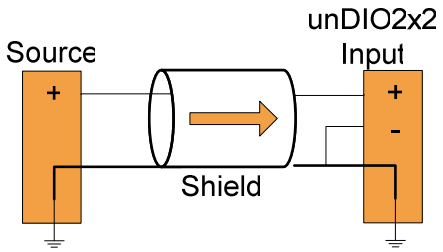


Figure 2 - 2-Wire Unbalanced Source Connection

To connect unbalanced sources with a 3-wire connection, short the negative conductor to the shield at the source connection.

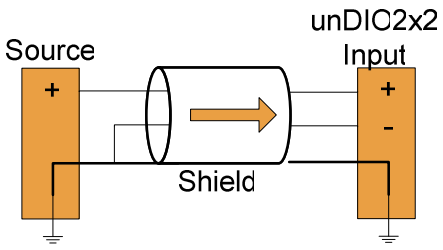


Figure 3 - 3-Wire Unbalanced Source Connection

2.2.2 – Input from a Balanced Source

To connect balanced sources to the unDX2IO, connect positive output to positive input, negative output to negative input, and connect the grounds together through the cable shield.

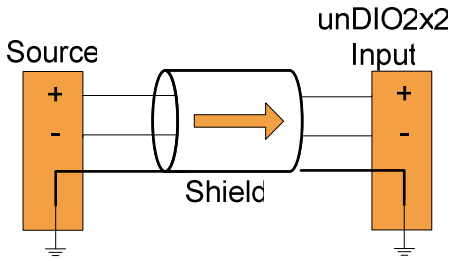


Figure 4 - Balanced Source Connection

2.2.3 – Output to a Balanced Destination

To connect to a balanced input on a destination device, connect the positive, negative, and ground connections of both the unDX2IO output to the destination input respectively.

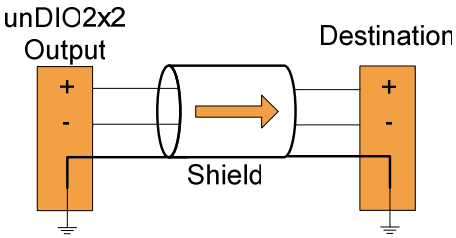


Figure 5 - Output to Balanced Destination Connection

2.2.4 – Output to an Unbalanced Destination

To connect the unDX2IO outputs to a 2-wire unbalanced input, connect the positive output to the destination's positive input and connect the grounds together through the cable shield. Leave the unDX2IO negative output floating.

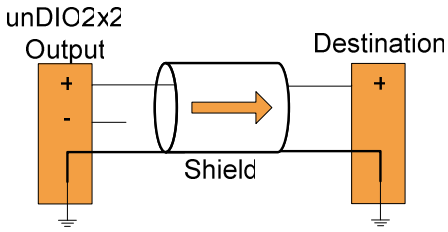


Figure 6 – Output to Unbalanced Destination

3 – Device Configuration

There are two parts of the device that require software to setup. First the audio routing, and second the configurable features of the device itself.

The audio routing should be carried out using Audinate's Dante Controller. This can be obtained from the Audinate website (www.Audinate.com). Instructions on how to use this software and about setting up routes on a Dante network can also be found on their website.

**Note: When using Dante controller, the unDX2IO will be shown using a default device name of unDX2IO###### where '######' is the last six characters of the devices MAC address.*

Configuration of the unDX2IO specific features is carried out using the Attero Tech unIFY Control Panel application. This application is available from the Attero Tech website (www.atterotech.com). It should be used to examine and modify the device specific features such as mic/line gain settings, phantom power, and output boost options.

3.1 – Software Installation

After downloading the application, run the .exe and the first screen to appear will be the license agreement and options screen.

Attero Tech unIFY Control Panel Setup
Attero Tech unIFY Control Panel
END-USER LICENSE AGREEMENT FOR ATTERO TECH SOFTWARE
IMPORTANT-READ CAREFULLY: This End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and the Supplier of the computer system
I agree to the license terms and conditions
Options
Install
Close

The software will install to a default location of c:\program Files (x86)\Attero Tech\unIFY Control Panel). Clicking the "Options" button allows the user to change the installation location if required though it's not necessary to change it.

To continue the install, read the license agreement and check the "I agree…" check box. Doing so enables the "Install" button. Click the now enabled "Install" button to start the transfer of files.

On Windows Vista or later if the PC has the UAC enabled, a warning pop up will now appear saying the installer is about to make changes to your PC. This needs to be accepted for the installation to complete successfully.

The installer will show a progress screen and will now being transferring files to your PC

Attero Tech unIFY Control Panel Setup
Attero Tech unIFY Control Panel
Setup Progress
Processing: Attero Tech unIFY Control Panel
Cancel

Once the files are transferred, the installer will show a completion message show whether the installation was successful or not.

If the installation was unsuccessful for any reason, the final screen will show an error message.

3.2 – Device Configuration

Once the required software is installed, click on the unIFY Control Panel icon in the programs list under Attero Tech. This will start the application.

Figure 7 - Device Configuration window

3.2.1 – Selecting a Network Adapter

In order to connect to a device the application needs to know what network adapter it should use to contact devices. Clicking on the networked PC icon will show a list of all possible adapters.

**Note: Only network adapters that are deemed as being compatible with Dante will be shown in the list.*

3.2.2 – Connecting to a Device

A few seconds after selecting the adapter, the device list should start to populate with detected devices. The detected devices are listed by their device name. Select the device to be configured from the drop down list and then click the "Connect" button. The application will then attempt to establish a connection with the device. If successful, the status bar will show "Connected" and the controls will become active and their values will update to show the current state of the device.

This connected device is now treated as the active device and any changes to the controls will be set to this device and this device alone.

3.2.3 – Device Identification

The device identification feature allows the user to see which device is physically being configured. When the Identify feature is active, the power LED on the active device will flash. The Identify check box shows the state of the device identify feature. If the box is checked, the feature is active on the active unit. If the check box is clear, the identify feature is inactive. To change the state of the feature, simply click in the Identify check box to toggle its state from off to on or on to off. The identify function will continue to operate until the function is turned off via the user interface or the device is powered down.

**Note: The identify function of Dante Controller does not control the identify feature on the unDX2IO. To identify a device use the unIFY Control Panel identify function instead.*

3.2.4 – Device Controls

The unDX2IO inputs have two software configurable options. The mic/line gain control and the phantom power control.

The mic/line gain control gives the user three gain choices depending on the type of signal being provided to the input. For a line level signal, select the 0dB option. The remaining two options are for use if a microphone is to be connected directly to the input. If using a microphone as an input source, choose the gain value that best suits the microphones output signal.

The phantom power option is available for microphones that need it. The unDX2IO provides 24V phantom power. Check the box to turn phantom power on. Uncheck the box to turn it off.

**Note:* *Although the screen shows settings for output gain, this function is not available on the unDX2IO and as a consequence, the output gain settings are disabled.*

3.2.5 – Saving and Loading Settings

The unDX2IO device settings can be saved or loaded by clicking on the icon to bring up the preset form.

The unDX2IO supports 10 internal presets with one of the presets acting as the power-up default. It also supports saving settings to, and loading settings from, a file.

3.2.5.1 – Internal Presets

Settings in a device can be saved to an internal preset which can then be recalled at a later date. There are 10 internal presets, one of which is a default preset that is used to set device settings when the unDX2IO is first powered on.

Select a preset to use by using the drop down in the Device Preset section. Once a preset has been selected, the current settings of the device can be saved to the selected preset by clicking the "Save to Device" button. Alternately, the settings from the selected preset can be loaded and used as the current settings by clicking the "Recall from Device" button.

**Note:* *Loading a preset will overwrite all the current settings in the device with settings from the selected preset.*

3.2.5.2 – Preset Files

To allow settings to be transferred to others devices or for use as a backup, the current settings can also be saved to a file or loaded from a file. When the loading settings from a file, both the on-screen controls and the device settings will be modified to match the settings from the file. If the settings from the file need to be saved to a preset, then that will need to be done manually once the settings are loaded.

To save the current settings to a file, click the "Save to File" button and then enter an appropriate filename. To load settings from a file, click the "Load from File" button and select the appropriate file.

4 – ARCHITECTS & ENGINEERS SPECIFICATION

The Dante Break interface shall provide two XLR balanced mic/line level analog inputs and two XLR balanced line level outputs on the front panel.

Each input shall have selectable gain options of 0dB, +25dB, and +40dB. The inputs shall have +48V phantom power. Input gain and phantom power shall be selectable via software.

The internal analog to digital conversions shall be performed at 24-bit resolution with a 48kHz sampling rate.

The Dante interface shall receive power over the Ethernet cable from an IEE802.3af PoE compliant network switch or mid-span injector. The Dante interface shall be in-wall mounting in a standard US dual gang junction box.

The Dante interface shall be compatible with Attero Tech unIFY software for flexible control and monitoring in systems applications. The Dante interface shall be compliant with the RoHS directive. The Dante interface shall be compliant with FCC Part 15 Class A, and CE (E60950 and EN55022 Class A) requirements.

The unit shall be the Attero Tech unDX2IO.

4.1 – Device Specifications

Audio Inputs:	
Input Type:	Balanced and RF filtered 3-pin depluggable
Gain:	0dB, +25dB, +40dB, software selectable
Input Impedance:	>1.8K ohms at any gain setting
Maximum Input Levels:	+8dBu @ 0dB gain -16dBu @ +25dB gain -31dBu @ +40dB gain
Phantom Power:	+48V, software selectable
Audio Outputs:	
Output Type:	Balanced line level with automatic muting on loss of Dante signal
Maximum output level:	+12dBu
Audio Performance:	
Noise:	<-90dBu @ 0dB gain
System THD:	<0.01% at any gain, input signal 3dB below maximum

Dante Network:	
Physical Level:	Standard Ethernet
Connector:	Single RJ-45
Cable Quality:	CAT-5
Transmission Speed:	100Mbps

Power Requirements	IEEE802.3af PoE
Power Consumption	Less than 3W
Dimensions	2.75”H x 3.60”W x 1.88”D
Operating Temperature:	0 °C – 40 °C
Compliance	FCC Part 15 Class A CE (EN60960 and EN55022 Class A) RoHS

APPENDIX A - Reference Documents

The following table lists the relevant reference documents.

Document Title	Revision
unIFY Proxy Server Users Manual	01